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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MCDONOUGH, JAMES E

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

02/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/693,786	Applicant(s) JIN ET AL.	
	Examiner JAMES E. MCDONOUGH	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 13, 23-29 and 44-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12, 13, 23-29, and 44-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Original Rejection

Claims 1-4, 7-16, 20, 24-29 and 34-78 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schertl et al., USP 5,770,755 (hereafter referred to as Schertl).

Schertl discloses a polymeric metallocene catalyst composition made using a combination of a metallocene having a polymerizable side group and an olefin (abstract; col. 1, 1. 60 to col. 2, 1. 26; col. 3, 1. 8-50; col. 4, 1. 35-67; col. 6, 1. 25-35; examples).

Schertl lacks disclosure that the composition is made by polymerizing the finished metallocene with or without the presence of the comonomer, instead disclosing making a polymeric cyclopentadienyl ligand first, then reacting this composition with a transition metal compound to make the polymeric metallocene.

However, the current claims are couched in product-by-process language, hence the finished product appears to be identical to that of the prior art. Since the prior art appears to describe and teach the invention as claimed on the basis of inherent property characteristics which either anticipate or render obvious the claimed invention, an alternative 102/103 rejection is deemed appropriate, and the burden of proof that it does or does not falls to applicants as in In re Best, 195 USPQ 430, 433 (CCPA 1977).

Claims 1-4, 7-16, 20 and 23-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schertl as cited above.

The disclosure of Schertl has been discussed above. Schertl lacks disclosure of more than one metallocene compound being in the polymerized catalyst product. However, such a modification is well within the skill of the routineer in the art. It would have been obvious to one of ordinary skill in the art to apply that skill to the disclosure of Schertl with a reasonable expectation of obtaining a highly-useful polymeric catalyst compound with the expected benefit of the catalyst not fouling the reactor.

Claims 1-4, 7-16, 20 and 24-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antberg et al., USP 5,169,818 (hereafter referred to as Antberg).

Antberg discloses a polymeric metallocene compound having as comonomer an olefin, the composition being made by copolymerizing metallocenes with olefinic side groups and olefins using free radical initiators as the catalysts for polymerization (abstract; col. 2, 1. 1 to col. 6, 1. 35).

Antberg lacks disclosure of the use of titanium as the metal for the metallocenes. However, the metals Antberg uses are hafnium and zirconium, the other two members of group 4 of the periodic table. It would have been obvious to one of ordinary skill in the art to apply that skill to the disclosure of Antberg with a reasonable expectation of obtaining a highly-useful olefin polymerization catalyst with the expected benefit of the catalyst being insoluble in ordinary organic solvents.

Claims 1-4, 7-16, 20 and 24-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antberg as cited above in view of Schertl as cited above.

The disclosure of Antberg has been discussed above. Antberg lacks disclosure of titanium as the metal in the metallocene compounds. However, Schertl teaches that titanium is useable as the metal in polymeric metallocenes (col. 6, 1. 25-28). It would have been obvious to one of ordinary skill in the art to apply the teaching of Schertl to the disclosure of Antberg with a reasonable expectation of obtaining a highly-useful olefin polymerization catalyst with the expected benefit of the catalyst being more economical to prepare as well as not fouling olefin polymerization reactors.

Claims 1-4, 7-16, 20 and 23-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antberg as cited above in view of Chabrand et al., USP 5,714,425 (hereafter referred to as Chabrand).

The disclosure of Antberg has been discussed above. Antberg lacks disclosure of the use of plural metallocene compounds in its polymeric metallocene catalyst. However, Chabrand teaches that such a modification is conventional in the art (col. 4, 1. 64 to col. 5, 1. 20). It would have been obvious to one of ordinary skill in the art to apply the teaching of Chabrand to the disclosure of Antberg with a reasonable expectation of obtaining a highly-useful olefin polymerization catalyst with the expected benefit of the polymers made using the catalysts having good processability.

Response to Arguments

Applicants argue that Schertl does not teach the use of monocyclopentadienyl but only biscyclopentadienyl. This is not persuasive as Schertl (column 2, lines 5-267)

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teaches that bridged and unbridged cyclopentadienyl groups can be used and further teaches that the metallocene is represented by the formula $[Q''MX_m]_n$ wherein Q'' is a unit containing at least one fluorenyl type group, and one skilled in the art would assume that 1 fluorenyl type group can be, which will make a substituted monocyclopentadienyl catalyst. The column 4 ligands that the applicants refer to are the bridged cyclopentadienyl ligands, but as stated these are only one embodiment of the invention (see column 4, lines 20-25). Based on the above arguments examiner respectfully submits that applicants are in error in their analysis of the reference. However, examiner would like to note that it is claim 24 that calls for monocyclopentadienyl compounds and claim 23 calls for either mono or bis cyclopentadienyl compounds.

Applicants argue that regarding claim 44 the reference does not teach or suggest a bridging group or that T has olefinic unsaturation. This is not persuasive and applicants are directed to the list on column 4, where it is clearly seen that Schertl teaches ligands with bridging groups and secondly there is no requirement in claim 44 that the group T has olefinic unsaturation examiner respectfully submits that applicants should carefully read their claims.

Applicants argue against Antberg with basically the same argument as they use for Schertl. These are found not persuasive because in the abstract and column 2, line 1 to column 6, line 7, Antberg clearly disclose compound reading on the instant claim limitation such as cyclopentadienyl with group IVb metals, where the cyclopentadienyl

has bridging groups containing olefinic unsaturation, and having a heteroatom donor selected from group 14.

Applicants argue the combination of Schertl and Antberg. These arguments are unpersuasive in light of above arguments.

Applicants argue the combination of Antberg in view of Chabrand. Applicant's arguments amount to an allegation that Antberg does not teach a bifunctional metallocene and that Chabrand does not remedy this. This is found not persuasive for at least the following 1.) Chabrand does suggest the combination of more than one metallocene compound (column 3, lines 33-34), this was in the quoted part of the reference, and applicants are reminded that they have a responsibility to read the cited and applied references. 2.) Chabrand does provide extra motivation for the combination, contrary to applicants assertion that it does not, however, this is only to show further how a bifunctional metallocene is obvious, and therefore, not patentable over the prior art, but is not needed because Antberg also teaches this.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES E. MCDONOUGH whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793